

## REMARKS

Claims 1-27 remain pending in this application.

Figure 1 on the first sheet of drawings was cited as being informal. A formal version of this sheet is enclosed for substitution for the sheet filed with the application.

Claims 1-27 were rejected under 35 U.S.C. §103 as being unpatentable over Erickson *et al.* in view of either Kauffman or Fuji *et al.* Applicants respectfully traverse this rejection.

The present invention, as specified in claim 1 for example, relates to an apparatus for dispensing detergent into a warewasher. The apparatus controls the flow of detergent from a reservoir into the warewasher. A sensor produces a signal indicating the amount of detergent that is present in the wash water. A controller has a first mode of operation in which the quantity of detergent dispensed into the warewasher is determined in response to the amount of detergent indicated by the sensor. In a second mode of operation, a predefined quantity of detergent always is dispensed into the warewasher. The controller switches between those two modes in response to the reliability of the sensor's operation.

The Erickson, *et al.* patent was cited as teaching a washing machine having two modes of operation. In a first mode, a wash process sensor 113 in Figure 6 utilizes a variety of sensors for turbidity, conductivity, temperature and the position of the wash arm (column 5, lines 15-23) to control the operation of the washing machine. The conductivity of the washing fluid is described as indicating the presence or absence of detergent, food particles or dirt and rinse aid material in the wash water (column 7, lines 40-42). However, the conductivity and other sensed parameters are only used to control the duration of the

wash and rinse cycles (column 11, lines 5-13). Nowhere does the patent describe the sensed parameters affecting the amount of detergent that is dispensed. Furthermore, when the wash process sensor 113 fails, the duration of the wash and rinse cycles default to fixed predetermined time periods in a second mode of the reference apparatus.

Therefore, unlike the present invention, the Erickson, *et al.* system does not alter the quantity of detergent being dispensed based on a sensor signal, much less dispense different quantities of detergent in whichever mode of operation is active. In other words, a fixed amount of detergent always is dispensed.

Similarly, the Fujii, *et al.* and Kaufman patents also describe dispensing only a fixed amount of detergent. Therefore, even when their teachings are combined with those of Erickson, *et al.*, nothing suggests the presently claimed invention. Specifically, the combination of those teachings does not describe a controller having two modes of operation: one in which the amount of dispensed detergent varies in response to a sensed amount of detergent in the wash water, and a second mode of operation in which a predefined quantity of detergent always is dispensed.

Therefore, the rejection has failed to prove that the claimed subject matter is obvious under 35 U.S.C. §103.

Independent claim 14 specifies a sensor that measures the electrical conductivity of the wash water, which measurement then is used in the first mode by the controller to determine the quantity of detergent to dispense. As noted previously, none of the

cited patents teaches varying the quantity of detergent being dispensed, nor doing so in response to measured conductivity of the wash water.

Claim 22 relates to a method for dispensing detergent into a warewasher which includes determining the reliability of a conductivity measurement produced by a sensor. When that conductivity measurement is reliable, the quantity of detergent dispensed is based on the conductivity measurement, and when the conductivity measurement is unreliable, a predefined quantity of detergent is dispensed. This use of the determined reliability of the conductivity measurement is not suggested in the combined teachings of the cited patents.

Similarly, claim 26 recites a control system for dispensing detergent into a warewasher, which has a controller with two modes of operation similar to those stated in claim 1, and thus is patentable for the same reasons.

In addition to the dependent claims being patentable for the same reasons as their respective independent claims, several dependent claims recite other features that are not suggested by the cited references. Specifically, claims 3-6, 15-17 and 27 state that the controller switches between the first and second modes of operation in response to specific characteristics of the electrical conductivity measured by the sensor.

Claims 8, 9, 18, 19, and 25 specify that the quantity of detergent dispensed is determined by comparing the sensed level of the detergent concentration to a desired concentration level. This feature of the present invention also is not suggested in the Erickson *et al.*, Kauffman, and Fuji *et al.* patents.

Furthermore, claims 15-17, 23, 24, and 27 recite specific parameters and conditions by which the controller determines when to switch between the different modes and how to determine whether the sensor is functioning reliably. Although the Erickson *et al* patent briefly mentions a course of action to take if the wash process sensor fails, it provides no information that would inform one skilled in the art how to determine when such failure occurs. The Fujii, *et al.* and Kaufman patents do not even mention detecting a sensor failure. Therefore, the combined teachings of the cited patents does not suggest to one skilled in the art the particular mechanism used in these claims to determine the reliability of a sensor, the measurement provided by the sensor, or when to switch between the two modes of operation.

## Conclusion

In view of these distinctions between the subject matter of the present claims and the teachings in the cited patents, reconsideration and allowance of the present application are requested.

Respectfully submitted,  
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